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The Suitability of Outpatient Prescription with The Hospital Formulary for Tuberculosis at Pasar Minggu Regional General Hospital Jakarta

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ABSTRACT: The Hospital Formulary is a list of drugs and drug use policies agreed upon by medical staff, compiled by the Pharmacy and Therapy Committee and approved by the hospital director. This formulary plays an important role in ensuring the correct use of drugs and according to standards for various diseases, including Tuberculosis (TBC), which is an infectious disease caused by Mycobacterium tuberculosis bacterial infection in the lungs. The aim of this study was to determine the suitability of outpatient drug prescribing with the hospital formulary for tuberculosis at the DOTS TB Clinic at Pasar Minggu Hospital in the period January to March 2024. This research is a cross-sectional study using a prospective total sampling technique. The results of the study showed that the total number of prescriptions used was 1,496 with the distribution of female 713 (47.66%) and male 783 (52.34%), the majority aged 46-55 years 364 (24.61%) with the most prescriptions in March 510 (34.10%). Conformity of prescriptions with the hospital formulary was highest in February at 95.76%. The use of drugs in accordance with the hospital formulary can provide safe, effective and efficient treatment.

KEYWORDS: Hospital formulary; Suistability of Prescription; Tuberculosis.

1. INTRODUCTION

Hospital is a healthcare institution that provides comprehensive individual healthcare services, including inpatient, outpatient, and emergency care. According to the Ministry of Health Regulation (PERMENKES) No. 72 of 2016 on Pharmaceutical Service Standards in Hospitals, every hospital is required to have a hospital formulary available to all prescribers, dispensers, and drug providers. This formulary serves as a guideline for the selection and use of medications in the hospital [1].

Tuberculosis is a global health issue that affects people of all ages. The Ministry of Health and healthcare workers successfully identified more than 700,000 cases of tuberculosis in 2022, the highest number since 1995 TB was designated as a national priority program [2]. According to the 2022 Global TB Report, Indonesia has the highest number of pulmonary TB cases in the world, with 969,000 cases and 93,000 deaths annually, or 11 deaths per hour, ranking second after India in terms of tuberculosis (TB) prevalence. Tuberculosis is an infectious disease caused by *Mycobacterium tuberculosis*, which can affect the lungs and other organs [3].

According to a study conducted by Teti Sutriati et al., titled 'Evaluation of Prescription Appropriateness for Internal Medicine Outpatients Against the Hospital Formulary' in 2019, it was found that some prescribed were not listed in the hospital formulary. The suitability were observed in August (100%), September (60%), October (50%), November (81%), and December (65%). The average result of the study was 71% of the total 100%. In conclusion, there are several drugs prescribed by doctors that are not in accordance with the hospital formulary, so there needs to be strict supervision of prescribing [4].

Pasar Minggu regional general hospital is a Type B hospital with a separate TB DOTS Clinic, separated from other outpatient clinics, as tuberculosis treatment is long-term. Therefore, research is needed to assess

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the suitability of outpatient drug prescribing with the hospital formulary for tuberculosis at the DOTS TB Clinic at Pasar Minggu Hospital in the period January to March 2024.

2. MATERIALS AND METHODS

2.1. Material

This research used secondary data from medical record is prescription of outpatient Pasar Minggu regional general hospital January to March 2024 period with inclusion criteria tuberculosis positive with or without comorbid diagnose, patients aged 17-64 years and patients undergoing TB treatment at the TB DOTS Clinic. Exclusion criteria were passed away patients and inpatients at Pasar Minggu Hospital.

2.2. Method

This study is a cross-sectional study using prospective sampling techniques, with total sampling of outpatient prescriptions at Pasar Minggu Hospital for the period January to March 2024. Data were analyzed descriptively with the percentage of prescription suitability and prescription suitability with the hospital formulary.

3. RESULTS

In this research, prescription data was used based on gender, age, fee guarantee as detailed below.

Table 1. Characteristic patients' tuberculosis.

Characterisctic Patients	January (n = 501)		February (n = 485)		March (n = 510)	
	n	%	n	%	n	%
Gender						
Female	241	48.10	236	48,66	236	46.27
Male	260	51.90	249	51.34	274	53.73
Ages						
17-25	74	14.77	77	15.88	76	14.90
26-35	104	20.76	97	20.00	98	19.22
36-45	89	17.76	89	18.35	96	18.82
46-55	121	24.15	119	24.54	124	24.31
56-64	113	22.55	103	21.24	116	22.75
Fee guarantee						
BPJS	481	96.01	458	94.43	483	94.71
Self payment	20	3.99	27	5.57	27	5.29

Note: n = total

The data below represents the suitabililty of drug prescriptions with the hospital formulary for tuberculosis at the TB DOTS Clinic of Pasar Minggu regional general hospital during the period from January to March 2024.

Table 2. Prescriptions outpatients tuberculosis

Month	Number of prescriptions	Suitability hospital formulary		Unsuitability hospital formulary	
	n	n	%	n	%
January	3300	3060	92.73	240	7.27
February	3629	3475	95.76	154	4.24
March	3929	3668	93.36	261	6.64

The table below provides a more detailed explanation of medications that are non-conformity with the hospital formulary.

Table 3. Frequency of non-conformity of drugs prescription with the hospital formulary

No	Drugs	January		February		March	
		n	%	n	%	n	%
1	Aminophyline tab 200	23	9.58	19	12.34	21	8.05
2	Bronsolvan 150 mg	131	54.58	59	38.31	138	52.87
3	Clonex tab 500 mg	10	4.17	5	3.25	15	5.75
4	Curcuma force tab	25	10.42	6	3.90	15	5.75
5	Kaditik tab 50 mg	1	0.42				
6	Levofloksasin	20	8.33	12	7.79	21	8.05
7	Neo diaform tab	1	0.42	1	0.65		
8	Rifampisin kapsul 300	26	10.83	38	24.68	42	16.09
9	Scopma tab	2	0.83			1	0.38
10	Sistenol	1	0.42	1	0.65		
11	Adalat oros			1	0.65		
12	Gabapentin					2	0.77
13	Betaserc 24					1	0.38
14	Lazol 30					5	1.92
15	Miniaspi 80			6	3.90		
16	Mst continus 15 mg			3	1.95		
17	Ulsidex			3	1.95		

4. DISCUSSION

This study was conducted at Pasar Minggu Hospital, with data collection in January-March 2024 at the DOTS clinic, this study has received ethical clearence from Pasar Minggu regional general hospital with the number 20/KOMETHUK/V/2024.

Based on table 1 regarding patient characteristics, it was found that most were male with an average of 52.34%. According to research conducted with previous research, the results showed that the majority of TB sufferers were male with 96 people (55.18%) out of 174 people. This happens due to several factors such as lifestyle, environment and habits. Men usually have unhealthy lifestyles such as smoking, consuming alcoholic drinks which can cause the body's defense system to decrease and are more easily exposed to agents that cause tuberculosis [5]. It's not just lifestyle that causes men to be more likely to get TB, but there are other factors that cause men to have more potential to get TB, such as biological factors, for example differences in hormones and the body's response to TB infection, work, and exposure to industry or people around the place [6].

Based on patient age data, the age most affected by tuberculosis is 46-55 years old with a total of 364 people, 192 men and 172 women, with a percentage of 24.33%. According to research by Putu Rika Veryanti, et al (2019) which also found that the age 46-55 was the age most frequently affected by TB, with 70 (37.8%) people out of 185 people. This happened because in patients with an age range of 46 -55 years is the largest age range diagnosed with pulmonary TB with comorbidities, where this situation is thought to be related to the level of activity and work as a worker which makes it possible to easily become infected with TB bacteria at any time from other TB sufferers. [6]. This age is the productive age where someone is actively working.

During productive age, a person will continue to be active in working to earn income to meet life's needs and meet many people who have a high potential for contracting and transmitting tuberculosis [3].

According to Table 2, regarding prescriptions written by doctors, there is a discrepancy of 18.16%. According to research by Yunarti, K. S. (2022), the percentage of conformity of prescriptions according to the formulary was 93.04%. According to research, there are several causes of discrepancies in the availability and prescription of drugs that are not in accordance with the hospital formulary. The first is that revisions and updates to the old formulary have not been carried out, so the prescribing guidelines still use the old hospital formulary [7].

Updates to the hospital formulary at Pasar Minggu regional general hospital are carried out every year. The formulary is agreed upon by the medical staff consisting of doctors, nurses, pharmacists, doctors, etc., and prepared by the therapeutic pharmacy committee team and then determined by the hospital director. Another factor is that drug planning methods are used based on previous periods or years of use, but doctors' prescribing patterns have evolved. Another factor is that certain doctors forget which drugs are listed on the hospital formulary, so that the prescribed drugs are not available in the hospital pharmacy depot [7].

Based on Table 3, which details the frequency of non-conformity of prescription with hospital formulary. The mean number of drugs prescribed in a single prescription was 7 in January, 8 in February and March. The results showed that Bronsolvan was the most commonly prescribed drug, and thus not in conformity with the hospital formulary. The distribution for Bronsolvan was as follows: 131 prescriptions in January, 59 in February, and 138 in March. This discrepancy is due to the fact that Bronsolvan is a trademark and thus not included in the hospital formulary. This finding is consistent with the results of another study, which revealed that 7.5% of drugs were not available in January, 5.6% in February, and 5.8% in March [8].

There are several reasons why medical practitioners may not adhere to the hospital formulary when writing prescriptions. One such reason is that the formulary itself may not be made available to the prescription writer [9]. The decision to prescribe medication is influenced by a number of factors; among these, are: Environmental factors within the workplace, the pharmaceutical industry sector, and interactions with patients [10]. Furthermore, the formulary's failure to undergo updates has resulted in a discrepancy between drug planning and therapy in accordance with disease trends [7].

According to Nursanti, writing prescriptions that do not follow the formulary guidelines will have an impact on the lack of drug supplies or excess drug stocks which ultimately also have an impact on service quality and increased costs [11] and the formulary is also influenced by other factors such as empty suppliers, combination drugs, only certain brands and so on [12]. The reasons for this may be due to factors such as the less effective utilisation of the medication in question, the low rate at which it is consumed or, from an economic perspective, the high price of the drug in question [13].

Inappropriate prescribing can result in a number of adverse effects, including a reduction in efficacy or a failure to adhere to the standard of care recommended by the hospital. This can result in a deterioration in the overall quality of patient care. The inclusion of drugs in the formulary represents a crucial determinant of cost-effectiveness. The potential for drugs not included in the formulary to be expensive is a further consideration. This may result in increased medical costs for patients or the wider health system.

5. CONCLUSION

The suitability of DOTS poly outpatient prescriptions to the formulary at Pasar Minggu regional general hospital during January to March 2024 obtained the highest percentage of prescription suitability of 95.76%.

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REFERENCES

[1] Ministry of Health Republic Indonesia, "Minister of Health Regulation Number 72 of 2016 concerning Pharmaceutical Service Standards in Hospital,", 2016.

[2] Ministry of Health Republic Indonesia, "Minister of Health of the Republic of Indonesia Number Hk.01.07/Menkes/200/2020 concerning Guidelines for the Preparation of Hospital Formularies" Jakarta. 2020.

[3] President of the Republic Indonesia, "Presidential Regulation Number 67 of 2021 concerning Tuberculosis Control" Jakarta. 2021.

[4] T. Tuloli, S. Madania, M. Rasdianah, & I. P. Gobel, Evaluation of the Appropriateness of Drug Prescribing in Internal Medicine Polyclinic Patients to the Formulary at the Hospital. *Journal Syifa Sciences and Clinical Research*, *4*(1). 2021

[5] T. Lestari, "Analysis of the Appropriateness of Prescribing Drugs BPJS Health Patients with National Formulary National Formulary at the Tangerang Regency Health Centre 2016". Farmagazine, VI (2). 2019.

[6] P.R. Veryanti, N. P. K. Dewi, D. Pertiwi, "Potential Interaction of Anti Tuberculosis Drugs in the Inpatient Installation of RSUD X Jakarta Period 2016". Sainstech Farma: Journal of Pharmaceutical Sciences, 2019.

[7] K.S. Yunarti, "Analysis of Drug Availability and Prescribing with Formulary at Hospital X Karanganyar Regency. Bina Cipta Husada Journal: Journal of Health and Science" 2022.

[8] S. N. Sa'idah, S. N. Asiyah, N. Yunitasari, "Conformity Profile of Outpatients' Prescriptions at the Pavilion Depo With the Hospital Formulary of Ibnu Sina General Hospital Gresik Regency". HERCLIPS (Journal of Herbal, Clinical and Pharmaceutical Sciences) , 4(1). 2022.

[9] E. Ni'matumnisa, A. Nurwahyuni, "Analysis of Physician Compliance in Prescribing National Formulary Drugs at Multazam Medika Hospital in 2018" Journal of Public Health (JKM) Cendekia Utama. 9 (1) p 29. 2021

[10] R. Della, N, Rusdiana, "Profile of the Appropriateness of Generic Drug Prescribing with the Hospital Formulary in Outpatient Coronary Heart Disease BPJS Patients at Tangerang Regency Hospital for the Period February - June 2019" Farmagazine Journal. 7(2). 2020.

[11] B. Nursanti, Y. Heryani, "Evaluation of the Appropriateness of Outpatient Non BPJS Prescription Writing with the Bogor Islamic Hospital Formulary October - December 2019 Period" Jurnal Farmamedika. 6(2). 2021.

[12] A. S. Pratiwi, T. Amalia, A. I. Haifa, E. Marliana, "Evaluation of the Appropriateness of BPJS Health Drug Prescriptions for Outpatient Internal Medicine Policies for the January 2023 Period against the National Formulary at X Hospital,' in Proceedings of the National Seminar on Research Dissemination" Tasik Malaya: Universitas Bakti Tunas Husada, 2023

[13] R. Widiyanto, A. Sabrina, V. W. Xezandrio, "An Overvıew Of The Suıtabılıty Of Jkn Outpatıent Prescrıptıons For The Natıonal Formulary At The Polyclınıc Of The Kartıka Husada Jatıasıh Hospıtal," J. Farm. IKIFA, 2(1) 2023